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(54) [TITLE OF THE INVENTION]

IC-card issuing system

(57) [Abstract]

5 [TASK] To efficiently issue a plurality of types of IC cards using an IC-card issuing machine having a plurality of IC writing means.

[SOLUTION] An IC-card issuing system 1 includes: a control unit 21; a storage means 22; an issuance pattern generating means 24; and a plurality of IC-card issuing machines including IC-writing processing unit (IC-card issuing unit) 31, 41, 51, 61. The control unit 21 manages control information and operating status of the plurality of IC-card issuing machines, selects the most appropriate one of the IC-card issuing machines for an IC card to be issued, and controls the one of the IC-card issuing machines to issue the IC card. Accordingly, a plurality of types of IC cards can be efficiently issued.

20 [CLAIMS]

[Claim 1] An IC-card issuing system using a plurality of IC-card issuing machines including a plurality of IC writing means and a control means for controlling the IC writing means, the system comprising: an IC-card issuance pattern generating means that generates an IC-card issuance pattern by using information for generating the IC-card issuance pattern and personal information; a storage means for storing client data in which the issuance pattern and issuance-requester information are associated; an IC-card issuing means; and a control means that controls an entirety of the system, wherein the control means manages control information and operating status of the plurality of IC-card issuing machines, selects one of the plurality of IC-card issuing machines used for issuance processing, and controls the issuance processing based on the client

data stored in the storage means.

[Claim 2] The IC-card issuing system according to claim 1, wherein the issuance-requester information is for setting information recording configuration of the card and a type of the information to be recorded.

[Claim 3] The IC-card issuing system according to claim 1 or 2, wherein the IC-card issuance pattern generating means includes a means for preparing information for generating the IC card issuance pattern.

10 [Claim 4] The IC-card issuing system according to any one of claims 1 to 3, wherein the information for generating the IC card issuance pattern includes IC-card issuing machine control information required for providing information generated during the issuance processing.

15 [Claim 5] The IC-card issuing system according to any one of claims 1 to 4, wherein the number of the generated and stored IC card issuance patterns is controlled in accordance with a memory capacity in the storage means.

20 [DETAILED DESCRIPTION OF THE INVENTION]

[0001]

[INDUSTRIAL FIELD OF THE INVENTION] The present invention relates to a system for issuing an IC card.

[0002]

25 [PRIOR ART] Recently, increasing number of personal information recording media such as cash cards, credit cards, ID cards and the like have come to be used. A Typical personal information recording medium embodied in a card includes an IC card, a color-print card carrying a face portrait and the like thereon, a magnetic card, an embossed card and the like. Such cards of various configurations are issued to the same person. All of the media of the various configurations differ in physical structure thereof, which are issued using a dedicated 30 issuing system. For instance, an IC card is issued using an issuing system including a reader/writer apparatus

capable of writing information on a memory in the IC card. A magnetic card is issued using a system including a reader/writer apparatus capable of writing information on a magnetic recording section in the magnetic card. A color-print card is issued using an issuing system including a printer capable of color-printing the name and face portrait of a person. Recently, a card having such various configurations of data on a single card has come to be issued to the same person. For instance, a cash card which was conventionally provided solely as a magnetic card has come to include an IC card configuration to increase the amount of information stored on the card. Further, processed information has come to be recorded on a card using calculation function of IC card, thereby widening applicability thereof. Especially, IC cards having large memory capacity and a calculation function are expected to find wide variety of applications as a mainstream of information recording media.

[0003]

[PROBLEM TO BE SOLVED BY THE INVENTION] When above-mentioned cards having various recording configurations of personal information on a single card are to be issued, various configurations are possible for such cards. For instance, information recording media to be used and the type of personal information to be recorded depend on the specification of a user (card-issuance requester). In view of the expected growing demand of cards, when cards are to be issued, it can be really troublesome to record desired personal information on the respective information recording media of such various cards to be issued. When an IC card combined with another information recording medium is to be used, both of the record on the other information recording medium and the record on IC recording section are associated with the specific individual, while the recording processing of the other of the information recording media is conducted using the record on the one of

the recording media as information for identifying the card. In order to conduct the card issuing process in this way, various operation control conditions of the system control unit of the issuing machine, such as a recognizing method of card identifying information, have to be set in order to cope with respective specifications of cards, which considerably deteriorates processing efficiency and accuracy. Further, in writing information on IC cards, control information (instructing information) given to an IC writing unit for issuing a desired IC card also differs in accordance with the specification on the IC cards, which also requires troublesome setting process. An object of the present invention is to provide an IC-card issuing system capable of efficiently and accurately issuing a plurality of types of IC cards storing personal information, in a plurality of information recording configurations.

[0004]

[MEANS FOR SOLVING THE PROBLEM] According to a first aspect of the present invention, an IC-card issuing system using a plurality of IC-card issuing machines including a plurality of IC writing means and a control means for controlling the IC writing means, the system comprises : an IC-card issuance pattern generating means that generates an IC-card issuance pattern by using information for generating the IC-card issuance pattern and personal information; a storage means for storing client data in which the issuance pattern and issuance-requester information are associated; an IC-card issuing means; and a control means that controls an entirety of the system, wherein the control means manages control information and operating status of the plurality of IC-card issuing machines, selects one of the plurality of IC-card issuing machines used for issuance processing, and conducts the issuance processing, thereby controlling IC-card issuance processing.

[0005] A second aspect of the present invention is the

system according to the above first aspect, in which the issuance-requester information is for setting information recording configuration of the card and a type of the information to be recorded.

¶ [0006] A third aspect of the invention is the system according to the above first aspect or the second aspect, in which the IC-card issuance pattern generating means includes a means for preparing information for generating the IC card issuance pattern.

¶ [0007] A fourth aspect of the present invention is the system according to the above first to the third aspects, in which the information for generating the IC card issuance pattern includes IC-card issuing machine control information required for providing information generated during the issuance processing.

¶ [0008] A fifth aspect of the present invention is the system according to the above first to the fourth aspects, in which the number of the generated and stored IC card issuance patterns is controlled in accordance with a memory capacity in the storage means.

[0009]

[EFFECT] According to the invention, the control unit of the system manages the plurality of types of card issuance pattern data stored in the storage means to select one of the plurality of IC-card issuing machines controlled to be adapted for specific IC cards that is the most suitable for the IC card to be issued based on the IC-card issuing machine control information determined by the pattern data in order to conduct the issuance processing. Further, efficient issuing processing in accordance with the processing condition becomes possible since the number of the generated and stored patterns is controlled in accordance with the memory capacity of the storage means while recognizing the operating condition of the respective issuing machines.

[0010]

[EMBODIMENT] An embodiment of the invention will be described below with reference to drawings. FIG. 1 is a block diagram showing an entire IC-card issuing system of the embodiment of the invention. The IC-card issuing system 1 includes: a control means 21 for controlling the entire system; a storage means 22 that stores client data in which an issuance pattern is associated with issuance-requester; and a plurality of (four in the present embodiment) IC writing processing units 31, 41, 51 and 61.

The IC-card issuing system serves as an IC-card issuing machine that writes personal information in an IC to issue an IC card as a personal information recording medium. A personal information distributing device 71 distributes the personal information to the plurality of IC writing processing units. The control means 21, the storage means 22, the IC writing processing units 31, 41, 51 and 61 and the personal information distributing device 71 are connected with each other via a network.

[0011] All of the IC writing processing units 31, 41, 51 and 61 are a system that employs a computer, which is constructed by a main body, a display unit and a processing apparatus. The main body is provided by a computer main body such as a personal computer. The display unit displays an image related to an operation of the main body.

The processing apparatus is a reader/writer for IC card, which records information directly on respective media IC memories based on the instructions from the main body. Incidentally, input device such as a keyboard and an external storage device such as a hard disk drive are connected to the main body as necessary.

[0012] Design of various information recording configuration other than the record embodied as the IC card configuration differs in accordance with the specification designated by a user who requests the issuance of IC card.

For instance, when information generated in issuing the card is to be provided, the providing condition thereof

(control information for operating the machine such as initial value and interval) is required as well as information for controlling the IC-card issuing machine such as recognizing method of card identifying information (magnetic data, optical data and the like), switching of clock frequency, standards information of data transfer, tolerable number of processing errors and card loading condition, which are set as parameters in a control information file as necessary. Further, a template-pattern file, i.e., information for generating actual IC-card issuance pattern data, is prepared, and the parameter file and the template-pattern file are stored in the storage means 22 of the IC-card issuing system 1. The data offered by the client as the information to be written in the IC 15 may have different format for describing the pattern file used for the respective readers/writers to access the IC card. In this case, a template-pattern generating means 23 for preparing information for generating the IC card issuance pattern has to be provided in order to rewrite the 20 pattern file to match the readers/writers used for actual access with the IC card. The template-pattern generating means 23 inputs/edits the data offered by the client as the IC writing information to prepare the template-pattern file for generating IC writing data. A control information file 25 in which parameters are set is generated on the above-described control information data of the IC-card issuing machine. Then, the template-pattern file and the control information file are paired as a client information file, which is supplied to the IC issuance pattern generating 30 means 24.

[0013] The IC issuance pattern generating means 24 generates an IC card issuance pattern file composed of writing processing data to the respective IC cards to be issued using the supplied client information file and the 35 personal information supplied by the personal information distributing unit 71, and supplies the IC card issuance

pattern file to the storage means 22 for managing the card issuance per client information file. Incidentally, it is preferable to store the IC card issuance pattern file in advance considering whether the predetermined number of issuance patterns that are to be actually generated can be stored or not in view of the memory capacity of the storage means. For instance, when usable memory capacity is sufficiently large, all of the IC card issuance patterns are generated and stored. On the other hand, when the memory capacity is small, the IC card issuance patterns are, for instance, separately generated and stored. Accordingly, the efficiency for generating the IC-card pattern files can be improved using a memory with high-performance but with small capacity. The issuance pattern file supplied to the storage means 22 is stored and managed therein as client data while being associated with the issuance-requester.

[0014] The preparation for an IC writing process is thus completed. Then, the control unit of the IC-card issuing system 1 commands the IC-card issuing machine to start IC writing process. The issuing system 1 includes a plurality of, four in this embodiment, IC writing processing units 31, 41, 51 and 61. As shown in FIG. 2 in detail, the IC-writing processing unit 31 includes an IC-card issuance control unit 32, a card identifying unit 33, and an IC-card reader/writer 34 (IC writing unit). Emboss processing device, magnetic recording processing device, color-print processing device and the like (all not shown) are connected to the IC-writing processing unit 31, thus constructing an IC-card issuing machine for conducting total process for issuing an IC card after the series of processes. The other IC writing processing units 41, 51 and 61 also have the same arrangement as mentioned above.

[0015] The control unit 21 of the IC-card issuing system 1 uses the issuance pattern file (client information) stored in the storage means 22 and the control information file,

to set the control conditions of the IC writing unit used in the issuing machine designed for a plurality of types of IC cards (The control conditions includes conditions different for each of the types of the cards such as

5 information for switching clock frequency, recognizing method of card identifying information including optical character recognition and magnetic information recognition, and common condition such as the tolerable number of processing errors). The control unit 21 controls the

10 control conditions of an IC writing apparatus appropriate for the specific design of the cards of the respective clients. During the IC writing process, the control unit, 21 supplies the IC card issuance pattern file corresponding to the client of which card is to be issued to the IC

15 writing processing unit 31 suitable for the selected issuance processing. The IC-card issuance control unit 32 in the IC writing processing unit 31 uses the supplied data to control the IC-card reader/writer 33 to conduct the processing. Thus, the data is written on the IC card to be issued. The other processing (e.g., embossing, magnetic recording and the like) is sequentially conducted based on the client information. The control unit 21 of the entire IC-card issuing system manages the operating status of the plurality of IC-card issuing machines and controls to

20 select one of the plurality of IC-card issuing machines that is the most suitable for each issuance processing, considering the control information of the issuing machine. Specifically, when the IC writing processing units 31 and 41 are controlled under the same setting conditions, the

25 control unit 21 controls a card transfer unit and an issuance pattern destination to select one of the writing processing units that has more capacity for issuance processing based on the operating status of the two writing processing units.

30 [0016] Processing results are stored and issuance history is managed for the card for which the entire card-issuing

processing has been completed in accordance with the user's specification and has been stored at a predetermined storing location. Specifically, a file is prepared and preserved for storing normal or abnormal results of the issuance processing, and transfer error data during the transfer process and the like. Further, considering the memory capacity, as to the IC-card issuance pattern file stored in the storage means 22, it is preferable that the file for the card whose issuing process is normally completed would be deleted and only the file for the card whose issuing process is abnormally terminated would be preserved, so that limited memory capacity can be efficiently used.

[0017] Though embodiments of the invention have been described above, the scope of the invention is not limited to the embodiments, but includes various modifications.

[EFFECT OF THE INVENTION] As described above, according to the IC-card issuing system of the present invention, personal information can be efficiently and accurately provided to a plurality of types of cards having various recording medium configuration of personal information as well as IC card configuration that differs for each specification designated by users.

[BRIEF DESCRIPTION OF THE DRAWINGS]

[FIG. 1] FIG. 1 is a block diagram showing an entire IC-card issuing system according to an embodiment of the invention.

[FIG. 2] FIG. 2 is a block diagram showing details of IC writing processing unit in the IC-card issuing system according to the embodiment of the invention.

[Explanation of Codes]

- 1: IC-card issuing system
- 21: control means
- 22: storage means
- 23: template-pattern generating means

24: issuance pattern generating means
31, 41, 51, 61: IC writing processing unit
32: IC-card issuance control unit
33: IC-card reader/writer
5 34: card identifying device
71: personal information distributing device

FIG. 1

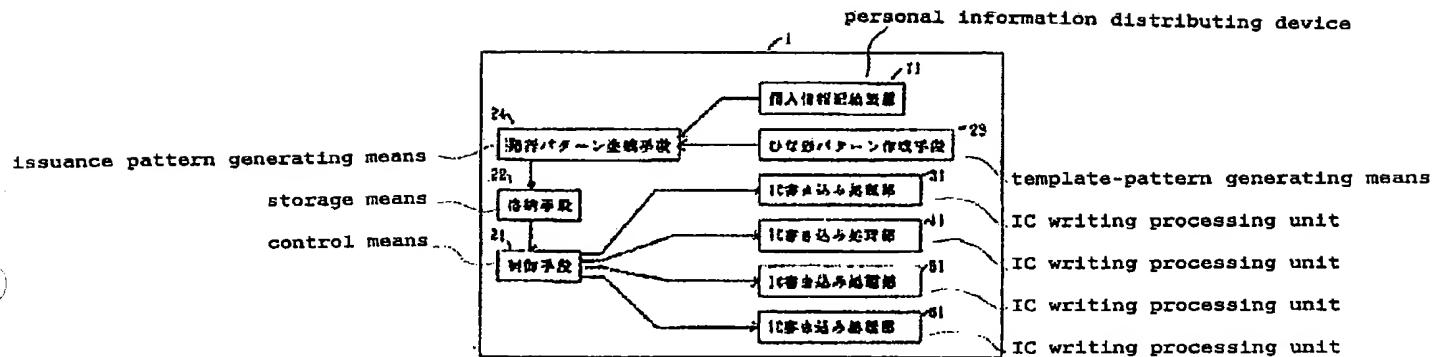


FIG. 2

